[0001] Cross-referenced and incorporated by reference are U.S. Patent Applications entitled A METHOD FOR MINIMIZING THE CRITICAL DIMENSION GROWTH OF A FEATURE ON A SEMICONDUCTOR WAFER filed on November 19, 1997, and with Serial No.08/974,089, issued April 4, 2000 as United States Patent No. 6,046,116; and U.S. Patent Application entitled PLASMA REACTOR WITH A DEPOSITION SHIELD, filed on December 5, 1997, and with Serial No. 08/985,730, now abandoned; and U.S. Patent Application entitled PLASMA REACTOR WITH A DEPOSITION SHIELD filed on December 1, 1998, and with Serial No. 09/204,020, issued December 28, 1999 as United States Patent No. 6,006,694.

In the Claims:

Please amend claims 12, 14, and 31, and add new claims 56-61, all as shown below.

All pending claims are reproduced below, including those that remain unchanged. Marked up copies of the amended claims illustrating the changes are shown in the Appendix to this Response. Claims 12-16, 19, and 30-31 were pending in the Application prior to the outstanding Office Action. In the Office Action, the Examiner rejected all claims. The present Response amends claims 12, 14, and 31and adds new claims 56-61, leaving for the Examiner's present consideration claims 12-16, 19, 30-31, and 56-61. Reconsideration of the rejections is requested.

12. (Once Amended) A method of operating a reactor which comprises a reactor chamber, an electrode, a heater that heats said electrode, and gas inlets and outlets, the method comprising:

introducing process gas into said reactor chamber;

providing power to said electrode in order to facilitate a reaction with said process gas and a workpiece contained in said reactor chamber; and

heating the electrode with said heater to a temperature such that any material resulting from the reaction deposited on the surface of the electrode forms a stable layer of material.

13. The method of claim 12 wherein said heating step includes:

heating the electrode to a temperature above a floating temperature that the electrode would otherwise attain during operation of the reactor without the heater.

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14. (Once Amended) The method of claim 12 wherein said heating step includes:

heating the electrode to a temperature between about 300°C and about 500°C.

15. The method of claim 12 wherein:

the method of operation of the reactor is an etch method.

16. The method of claim 12 wherein:

the method of operation of the reactor is a platinum etch method.

19. The method of claim 16 wherein oxygen and chlorine are present in the reactor, the method includes:

heating the electrode in order to cause deposits of oxygen and chlorine to de-absorb from the electrode in order to leave mostly platinum deposited on the electrode.

30. The method of claim 12 including a non-volatile material etch process.

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31. (Once Amended) The method of claim 12 including the step of etching one of the group consisting of titanium (Ti), titanium nitride (TiN), platinum (Pt), iridium (Ir), iridium oxide (IrO_2), barium strontium titanate (BST), strontium bismuth tantalate (SBT), strontium titanate (STO), ruthenium (Ru), ruthenium oxide (RuO_2), and lead zirconium titanate (PZT).

56. (New) The method of claim 12, wherein the step of providing power provides power to an upper electrode.

57. (New) A method of operating a reactor which comprises a reactor chamber, an upper electrode, and a heater that heats the upper electrode, the method comprising:

introducing process gas into said reactor chamber;

providing power to said upper electrode in order to facilitate a reaction with said process gas and a workpiece contained in said reactor chamber; and

heating the upper electrode with said heater to a temperature such that any material resulting from the reaction that is deposited on the surface of the upper electrode forms a stable layer of material.

58. (New) A method for etching a workpiece in a reactor chamber, comprising:

etching a workpiece in the reactor chamber; and

heating a surface in the reactor chamber during the etch such that etch materials deposited on the surface form a stable layer of material that does not flake off onto the workpiece.

59. (New) A method according to claim 58, wherein the step of heating a surface includes heating a surface selected from upper electrodes, side electrodes, deposition shields, and chamber surfaces.

60. (New) A method according to claim 58, wherein the step of heating a surface includes heating the surface until any gas collected on the surface de-absorbs from the surface.

61. (New) A method according to claim 58, wherein the step of heating a surface includes heating the surface until any gas collected on the surface boils off the surface.